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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,140	10/09/2003	Jeong-Rok Kim	3430-0193P	6455

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EXAMINER	
NGO, HUYEN LE	

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 06/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary	**Application No.** 10/681,140	**Applicant(s)** KIM ET AL.
	Examiner Julie-Huyen L. Ngo	**Art Unit** 2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)	4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) ☐ Notice of Informal Patent Application (PTO-152)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.	6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group 1, directed to claims 1-10 and 14-20 in the reply filed on April 25, 2005 is acknowledged.

The traversal is on the ground(s) that the Examiner fails to meet the required burden of showing that the groups of claims are independent and distinct, as required by 35 USC 121.

After carefully examine the claims and Applicant's remark, the restriction requirement is hereby withdrawn and all claims are being examined as follow:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (APA) and in view of Katada et al (JP11-229132).

APA disclose in figures 1-4 a method of fabricating a liquid crystal display device, including a method of sputtering a metal layer onto a substrate comprising the following:

Claim 1:

- forming a gate line 13 on a first substrate 22;
- forming a data line 15 crossing the gate line;

- forming a switching element TFT connected to the gate line and the data line
- forming a pixel electrode 17 connected to the switching element;
- forming a black matrix 6 on a second substrate 5 using a sputter 100
- forming a color filter layer 7 on the black matrix
- forming a common electrode 18 on the color filter layer
- attaching the first and second substrates such that the pixel electrode faces the common electrode, and
- forming a liquid crystal layer 14 between the pixel electrode and the common electrode

wherein

Claim 14:

A method of sputtering a metal layer onto a substrate, comprising the steps:

- providing a sputtering chamber having a susceptor and a target therein;
- providing a shield between the susceptor and the target, the shield having an opening therein;
- placing a substrate on the susceptor below the shield
- sputtering a metal layer onto the substrate.

Claims 7 and 9:

- the pixel and common electrode includes a transparent conductive material, which would obvious to one of ordinary skill in the art to utilize one of indium-tin-oxide (ITO) or indium zinc-oxide (IZO) for its high transparent and conductivity characteristics.

Claims 11 and 13:

- the sputter 100 (Figure 3) for a fabricating process of said liquid crystal display device, comprising:
  - a chamber 105,
  - a susceptor 120 in the chamber,
  - a substrate 110 being loaded on the susceptor,
  - a platen 130 under the susceptor, the platen adjusting a height of the susceptor;
  - a target 140 over the susceptor 120;
  - a magnet 150 over the target, and
  - a shield mask 160 between the substrate and the target

Claims 2, 3, 5 and 12:

- the target 140 includes (Cr) for forming the metal layer, the gate line, data lines, black matrix, pixel electrode or common electrode (see paragraphs 0014-0016 in page 5)

However, APA fails to disclose that the sputter includes a shield mask having an open portion having dimensions larger than or equal to size dimensions of the substrate 110 for forming a metal layer (claims 15-20) as a gate line, a data line, a black matrix, a pixel electrode and a common electrode in said liquid crystal display device.

Katada et al teach (abstract and paragraphs 12&22, and drawings 1 and 2) using a sputter with a shield mask 9 or 9a & 9b for preventing particles sputtering to the inner wall of the chamber 2 and arrange so as to be far from the distance with the wafer/ substrate 4. Note that shield mask 9 in drawing 2 has an open portion with dimensions larger than, and the mask shield 9a & 9b in drawing 1 is equal to size dimension of the wafer/substrate 4.

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to form the black matrix (claims 1&18), the gate line (claims 4&16), the data line (claims 6&17), the pixel electrode (claims 8&19), and the common electrode (claims 10&20) in APA device with sputter 100 including a shield mask having dimensions larger than or equal to size dimensions of the second substrate for preventing particles sputtering to the inner wall of the chamber in APA device, as taught by Katada et al.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Woodward et al (US4988424 A) disclose a foraminous mask and method for making gradient sputtered coatings-coatings of varying thickness across a surface of a substrate. The size of openings in the foraminous mask may be varied in different areas to provide versatility in controlling the gradient patterns.

Berasi et al (US 5744214 A) disclose an corrosion resistant molybdenum mask having open pattern that is used to shield selected portions of a surface during a deposition process, and more particularly to a mask for sputter deposition of electrically conductive materials on preselected areas of a substrate.

Zhou et al (US6407408 B1) disclose a method of fabricating a device, which involves depositing the organic layer and the second electrode through the integrated mask, such that the second electrode is in electrical contact with the bus line by sputter deposition where there is off-angle deposition from angles greater than 30 degrees--angles up to 45 degrees, 60 degrees, or even approaching 90 degrees.

Contact Information

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Julie-Huyen L. Ngo whose telephone number is (571) 272-2295. The Examiner can normally be reached on T-Friday.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor, Mr. Robert H. Kim can be reached at (571) 272-2293.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1562.

June 17, 2005

Julie - Huyen L. Ngo
Primary Examiner
Art Unit 2871